IN THE CLAIMS:

Please amend the claims as follows:

1. (Original) An angular velocity sensor comprising:

a tuning fork vibrator including at least two arms, and a base to connect the at least two arms;

a drive unit which is provided on a main surface of an arm of the at least two arms of the tuning fork vibrator so as to excite the tuning fork vibrator in one of an X direction and a Z direction of the tuning fork vibrator;

a detection unit which is provided on the main surface of the arm of the at least two arms of the tuning fork vibrator so as to detect bending of the tuning fork vibrator vibrating in the Z direction in response to incoming angular velocity;

a first drive circuit which makes the drive unit excite the tuning fork vibrator in the X direction;

a detection circuit which includes an amplifier for amplifying a signal from the detection unit and producing an angular velocity signal;

a second drive circuit which applies a drive signal to the drive unit so as to make the drive unit excite the tuning fork vibrator in the Z direction; and

a self-diagnostic circuit which compares an output of the amplifier with a reference value when the second drive circuit applies the drive signal to the drive unit, and which determines to be abnormal when a prescribed value cannot be obtained.

2. (Original) The angular velocity sensor according to claim 1, wherein at turn-on, the second drive circuit is first activated so that the self-diagnostic circuit can perform

self diagnosis, and after a mode transition occurs, the first drive circuit is activated so that detection of angular velocity can be performed in a predetermined manner.

3. (Original) The angular velocity sensor according to claim 1, wherein after the first drive circuit is activated and detection of angular velocity is continued for a prescribed length of time, the second drive circuit is activated so that the self-diagnostic circuit can perform self diagnosis, and then, the first drive circuit is activated again so that the detection of angular velocity can be performed again.

4. (Currently amended) The angular velocity sensor according to claim 1, wherein the second drive circuit is activated when the detector circuit detects ~~it is detected~~ that a car is at a speed of zero, and the self-diagnostic circuit performs self diagnosis.

5. (Currently amended) The angular velocity sensor according to claim 1, wherein the tuning fork vibrator is made of a non-piezoelectric material, and

the drive unit includes:

a first, second, third and fourth electrodes which are formed separately from each other inside and outside a center line on the main surface of each of the at least two arms of the tuning fork vibrator;

a first, second, third and fourth piezoelectric thin films which are respectively formed on the first, second, third and fourth electrodes; and

a fifth, sixth, seventh and eighth electrodes which are respectively formed on the first, second, third and fourth piezoelectric thin films, the fifth, sixth, seventh and eighth electrodes being applied with drive signals of a same phase by the second drive circuit,

the detection unit includes:

a ninth electrode which is formed on the main surface of one of the at least two arms separately from the first and second electrodes;

a fifth piezoelectric thin film which is formed on the ninth electrode;

a tenth electrode which is formed on the fifth piezoelectric thin film;

an ~~11th~~ eleventh electrode which is formed on the main surface of an other of the at least two arms separately from the third and fourth electrodes;

a sixth piezoelectric thin film which is formed on the ~~11th~~ eleventh electrode; and

a ~~12th~~ twelfth electrode which is formed on the sixth piezoelectric thin film, and

the self-diagnostic circuit includes:

a first amplifier which is connected with the tenth electrode;

a second amplifier which is connected with the ~~12th~~ twelfth electrode;

a differential amplifier which differentially amplifies an output of the first amplifier and an output of the second amplifier; and

a comparator which compares an output of the differential amplifier with a reference value.

6. (Currently amended) The angular velocity sensor according to claim 1, wherein the tuning fork vibrator is made of a non-piezoelectric material, and

the drive unit includes:

a first, second, third and fourth electrodes which are formed separately from each other inside and outside a center line on the main surface of each of the at least two arms of the tuning fork vibrator;

a first, second, third and fourth piezoelectric thin films which are respectively formed on the first, second, third and fourth electrodes; and

a fifth, sixth, seventh and eighth electrodes which are respectively formed on the first, second, third and fourth piezoelectric thin films, the fifth, sixth, seventh and eighth electrodes being applied with drive signals of a same phase by the second drive circuit,

the detection unit includes:

a ninth electrode which is formed on the main surface of one of the at least two arms separately from the first and second electrodes;

a fifth piezoelectric thin film which is formed on the ninth electrode;

a tenth electrode which is formed on the fifth piezoelectric thin film;

an ~~11th~~ eleventh electrode which is formed on the main surface of an other of the at least two arms separately from the third and fourth electrodes;

a sixth piezoelectric thin film which is formed on the ~~11th~~ eleventh electrode; and

a ~~12th~~ twelfth electrode which is formed on the sixth piezoelectric thin film, and

the self-diagnostic circuit includes:

a first amplifier which is connected with the tenth electrode;

a second amplifier which is connected with the ~~12th~~ twelfth electrode;

a first comparator which compares an output of the first amplifier with a reference value; and

a second comparator which compares an output of the second amplifier with a reference value.

7. (Original) The angular velocity sensor according to claim 6, wherein the self-diagnostic circuit further includes:

a differential amplifier which receives the output of the first amplifier and the output of the second amplifier; and

a comparator which compares an output of the differential amplifier with a reference value.